intracellular IL-17A. Infected animals also developed peribronchial B220+ cellular foci.

In mediastinal LNs following infection, PA-specific responses were dominated by B220+ CD19+ CD43+ CD23-B5+ cells expressing and producing IL-17A and IL-22 as well as PA-specific IgM but not IgG. This PA-specific B1 response was not seen in the thoracic lymph nodes of sterile-head treated animals. In splenocytes, there was a pre-existing B cell response to PA with identical features. Peritoneal B1a cells isolated from untreated controls also produced IL-17A, IL-22 and anti-PA IgM following infection, confirming the existence of pre-existing B1 cells that can respond to PA. In μMT animals, chronic colonisation rates, bacterial burden and neutrophilic inflammation did not differ from WT littersmates. However, classical PA-specific Th17 responses dominated following infection in μMT animals, suggesting alternative compensatory IL-17 sources acting in the absence of B cells.

Conclusions In chronic pulmonary PA infection, innate-like B1 cells migrate to the site of infection and are a novel source of pro-inflammatory IL-17 cytokines.

Lung cancer: reasons to be cheerful

Introduction The National Lung Cancer Audit, now in its 8th year, is run jointly by the Royal College of Physicians and The Information Centre for health and social care, and is commissioned by the Healthcare Quality Improvement Partnership (HQIP). Over this period, the audit has collected rich data of increasing quality and has charted improving standards of care. Demonstrating that these improved diagnostic pathways and increased treatment rates translate into longer survival has so far proven elusive since short-term survival is heavily influenced by the large numbers of patients presenting with advanced incurable disease, but as the data matures it is hoped that longer-term survival will indeed increase.

Abstract S106 Table 1.

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<th>2005</th>
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<th>2007</th>
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<td>Number of cases</td>
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<tr>
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S106 – 10.1136/thoraxjnl-2013-204457.113

S107 – 10.1136/thoraxjnl-2013-204457.114

TREATMENT AND OUTCOMES FOR LOCALLY ADVANCED (STAGE IIIA) LUNG CANCER; 4 YEAR EXPERIENCE FROM THE NATIONAL LUNG CANCER AUDIT

Background Surgery for lung cancer patients with mediastinal lymph node involvement (N2 disease) remains controversial. In one study (Albain 2009), progression-free (but not overall) survival was higher for patients who received induction chemotherapy following lobectomy but post operative mortality was high in pneumonectomy patients. We describe treatment and outcomes for patients with pre-treatment IIIA disease using data submitted from England to the National Lung Cancer Audit (NLCA) 2008–2011.

Methods Patients with pre-treatment staging of T1–3, N2, M0 were included. Small cell cancer, mesothelioma and carcinoid were excluded. The extent and histological nature of pre-treatment N2 disease is not recorded in the NLCA. Survival analyses were performed according to treatment received.

Results 6,775 of 98,403 (6.9%) patients met the inclusion criteria. 2,669 (39%) patients had either chemotherapy or radiotherapy recorded and 2,250 (33%) patients had no treatment recorded. 948 (14%) patients received chemotherapy and radiotherapy however radiotherapy treatment intent was recorded as curative in only 12%. 907 (13%) patients had surgery recorded as part of their treatment plan. Of these, 70% had post operative pathological nodal status recorded (25% N0, 14% N1, 30% N2). Median survival following surgery for the 271
patients with pathological N2 disease was 806 days, with 30 day survival of 99% and 1 year survival 76%.

**Conclusions** Lung cancer patients with stage IIIA disease make up a very small proportion of the overall lung cancer population. Only a small proportion of these patients receive surgery and there is significant discrepancy between the recorded pre and post operative nodal status. In patients with pathological confirmed N2 disease survival is similar to the 713 days reported in the Albain study. The automated collection of detailed radiotherapy/chemotherapy treatment data in future will allow a more reliable comparison between surgical and non-surgical treatments.

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**S108** **STATIN USE AND CIGARETTE SMOKING ARE ASSOCIATED WITH LOWER INCIDENCE OF RADIATION PNEUMONITIS**

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**Background** Three months after radical radiotherapy for lung cancer, 50–60% of patients have radiation pneumonitis (RP) on CT thorax. Our aim was to assess the clinical and dosimetric factors associated with radiologically-defined RP. Our primary end-point was the development of new infiltrates on CT thorax at 3 months following radiotherapy.

**Methods** 161 patients with lung cancer were referred for radical radiotherapy during 2009–2010. Exclusion criteria were previous thoracic radiotherapy or surgery, palliative radiotherapy, or missing dosimetric or CT data.

Information on medical history, lung function and date of death were taken retrospectively from electronic notes. Dosimetric parameters V20-Lung (percentage normal lung exposed to more than 20Gy), V5-Lung and Mean Lung Dose were derived from treatment planning dose-volume histograms. Development of RP was defined as an increase in the percentage lung volume occupied by consolidation or ground glass on post-radiotherapy CT. Student’s t-test and Fisher’s Exact Test were used to define variables which were associated with RP prior to logistic regression analysis.

**Results** 98 cases were included in analysis. 86% had non-small cell lung cancer, 44% had chronic obstructive pulmonary disease (COPD), and 27% smoked. 49/98 (50%) patients developed RP on CT at median 90 days post-radiotherapy.

The factors which had a significant positive correlation with RP on univariate analysis were V20-Lung, V5-Lung and MLD: these were best represented using V20-Lung ≥22%. Current smoking, poor performance status and having COPD had a significant inverse correlation with RP. Use of statins or inhaled Long Acting β2 Agonists, and the presence of moderate-severe radiological emphysema also approached significance: these were included in regression analysis.

After logistic regression, the factors which had a significant correlation with RP were V20≥22% (OR 6.45, 95%CI 2.22–18.08), current smoking (OR 0.23, 95%CI 0.07–0.79), and statin use (OR 0.30, 95%CI 0.102–0.863).

Neither RP nor any other variable was associated with post-radiotherapy mortality.

**Conclusions** This study confirms that V20≥22% is associated with the radiological development of RP. In addition, patients who smoked, and those taking statins were significantly less likely to develop RP. A potential role for statins in modifying radiotherapy side effects deserves further attention.

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**S109** **THE INTRODUCTION OF STEREOTACTIC ABLATIVE RADIOTHERAPY INCREASES OVERALL RADICAL TREATMENT RATES FOR STAGE I LUNG CANCER BUT DOES NOT REDUCE SURGICAL RESSECTION RATES—A TWO CENTRE STUDY**

1. Cheyne, 2G Esterbrook, 3V Vidyarthanan, 4R Milton, 5G Smith, 6P Blaxill, 7K Clarke, 8M Snee, 9K Franks, 10MEJ Callister; 1The Leeds Teaching Hospitals NHS Trust, Leeds, UK; 2The Mid Yorkshire Hospitals NHS Trust, Wakefield, UK

**Background** Stereotactic ablative radiotherapy (SABR) is a new treatment option for peripheral stage I lung cancer in patients unfit for surgical resection. SABR was introduced to Leeds Teaching Hospitals (LTHT) and Mid Yorkshire Hospitals (MYH) in May 2009. We sought to establish what effect the introduction of SABR had on surgical resection rates for stage I lung cancer, and compared clinical characteristics of patients receiving surgery, SABR, conventional radical radiotherapy (RRT) and best supportive care.

**Methods** All patients diagnosed with stage I lung cancer from 2008 to 2011 were analysed for treatment modality, performance status (PS) and lung function.

1. **Results** 565 stage I patients were studied and treatment rates over the 4 year period are shown below. The proportion of patients receiving SABR rates rose from 0% in 2008 to 26.1% in 2011. Surgical resection rates remained largely unchanged, but there was a reduction in the proportion of patients receiving best supportive care from 32.6% in 2008 to 13.7% in 2011. Overall radical treatment rates for the four years were 60%, 70.7%, 68% and 85% for 2008–2011 respectively.

The proportion of patients with PS 0–1 were as follows: surgery 88%, SABR 39%, RRT 38% and BSC 13%. FEV₁ (l) (mean% predicted, 95% CI) was significantly higher in patients receiving surgery (80.1, 77.3–82.9) compared to those patients receiving SABR (62.1, 56.0–68.3, p < 0.001 vs surgery), RRT (62.7, 54.2–71.3, p < 0.001 vs surgery) and BSC (56.4, 49.8–63.0, p < 0.001 vs surgery). Similarly gas transfer was significantly higher in the surgical patients compared to the other three groups.

For stage I lung cancer patients over the age of 75, the proportion of patients SABR rose from 0% in 2008 to 32.1% in 2011. Overall numbers of patients aged over 75 receiving BSC decreased over the four years; 49%, 45.5%, 38.6% and 24.4% in 2008–2011 respectively.

**Conclusion** The introduction of SABR has led to a significant increase in overall radical treatment rates for patients with stage I lung cancer, without resulting in a sustained reduction in surgical resection rates. Patients undergoing SABR and RRT have worse lung function and performance status than those undergoing surgery.

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**S110** **EXPERIENCE WITH SUSPECTED CANCER REFERRALS FROM THE UK LUNG SCREEN TRIAL**

1. D Jones, 1D Krowimeter, 1M Murthy, 1N Hunt, 1H Holmans, 1J Field, 1M Ledson, 1M Walshaw, 2Liverpool Heart & Chest Hospital, Liverpool, United Kingdom; 2University of Liverpool, Liverpool, United Kingdom

10.1136/thoraxjnl-2013-204457.117

**Background** The proportion of patients referred with a diagnosis of lung cancer is increasing and the proportion of patients diagnosed with stage I disease is increasing. The UK Lung Screen Trial is a national study conducted to determine if lung screening is an effective preventative measure in reducing cancer mortality from lung cancer.

**Methods** The UK Lung Screen Trial is a randomised controlled trial, which started recruiting patients on November 17, 2011 to November 16, 2015. Referrals for suspected cancer are handled by a national service by the HTA. Referrals are processed and reviewed by a multi-disciplinary team at the local screening centre. Referrals are screened for all evidence of lung cancer and then referred to the National Lung Screening Network for further investigation.

**Results** To date approximately 900,000 individuals have been invited to participate in screening with over 170,000 individuals being recruited. Over 1000 referrals for suspected lung cancer have been made from the screening programme. Of these referrals, 60% have been to the screening team at the local hospital, 30% to a respiratory expert and 10% to a chest radiologist.

**Conclusion** The process of handling referrals for suspected cancer is working efficiently and the majority of referrals are being appropriately managed. The process will continue to improve and develop to ensure that all patients with suspected lung cancer are appropriately managed.